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<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/738,372	COSTELLO ET AL.	
	Examiner	Art Unit	
	Evan Pert	2826	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed December 16, 2003.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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|---|--|
| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date <u>0304</u></li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1-18 are allowed.
2. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose applicant's claimed group of hydrofluoroether compounds represented by the general formula  $R_f-O-R_h-O-R_f$  (as defined by claim 1), and hence does not disclose any method or apparatus involving heat transfer with the particularly claimed hydrofluoroether compounds of generic claim 1.

The hydrofluoroether compounds within the scope of claim 1 are particularly advantageous for heat transfer in systems where electrical parameters such as high dielectric strength and low electrical conductivity are desirable and wherein the heat transfer medium is desirably liquid having good heat-transfer properties over a wide range of temperatures. Furthermore, the compounds within the scope of claim 1 advantageously have shorter atmospheric lifetimes, and therefore a lower global warming potential, than existing heat-transfer fluids [p. 6].

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

The article entitled "Secondary Heat Transfer Systems and the Application of a New Hydrofluoroether" to Sherwood is cited for disclosing a hydrofluoroether as a heat-transfer medium, but this compound designated "HFE L-13938" does not fall within the scope of claim 1 (i.e. does not meet the general formula  $R_F-O-R_H-O-R_F$ , as defined by claim 1).

US 3,362,180 to Eiseman is cited for disclosing an early patent describing the use of hydrofluoroether compounds for refrigeration, but none of the hydrofluoroether compounds disclosed by Eiseman fall within the scope of claim 1.

US 6,205,799 to Patel et al. is cited for mentioning the use of hydrofluoroether compounds in a spray cooling system [col. 5, lines 11-12], but do not suggest using hydrofluoroether compounds that fall within the scope of allowed claim 1.

US 6,297,308 to Jariwala et al. is cited for disclosing hydrofluoroether compounds as useful for drying of substrates such as semiconductor wafers, but the hydrofluoroether compounds disclosed do not fall within the scope of allowed claim 1.

US 6,303,080 to Tuma is cited for disclosing the use of hydrofluoroether compounds for heat transfer in a low temperature process, but the disclosed compounds do not fall within the scope of allowed claim 1.

US 6,374,907 to Lew et al. is cited for disclosing the use of hydrofluoroether compounds as a heat-transfer fluid, but the disclosed compounds do not meet the general formula  $R_F-O-R_H-O-R_F$  (as defined by claim 1), for example.

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US 6,429,400 to Sawada et al. is cited for disclosing that hydrofluoroether compounds have suitable dielectric withstand voltage as a heat-transfer fluid in a plasma processing system [col. 6, lines 55-67, for example], but do not disclose compounds that fall within the scope of allowed claim 1.

US 6,746,620 is cited for disclosing hydrofluoroether compounds as dielectric working fluids in heat transfer circuits, wherein the compounds are characterized by the general formula  $R'-R_f-R$ , but the disclosure does not include or suggest the general formula  $R_f-O-R_h-O-R_f$  (as defined by allowed claim 1).

US 6,866,094 to Cousineau et al. is cited for disclosing the use of a hydrofluoroether compound as a heat-transfer fluid for a temperature controlled wafer chuck [col. 11, lines 35-48], but the compound is "HFE-7100," not falling within the scope of the general formula  $R_f-O-R_h-O-R_f$  (as defined by allowed claim 1).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 571-272-1969. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ETP  
April 18, 2005

  
**EVAN PERT**  
**PRIMARY EXAMINER**